**California Actuarial Advisory Panel**
**Discussion Draft: MODEL POLICIES FOR PRICING BENEFIT CHANGES**

## INTRODUCTION AND OVERVIEW~~Introduction and Overview~~

This first section of this discussion includes actuarial issues to consider when pricing pension and OPEB benefit changes in order to meet the general policies identified by CAAP, including a list of possible disclosures necessary to be fully transparent regarding the various financial implications of any benefit changes. The second section raises issues to consider when designing and negotiating possible benefits changes in pension and OPEB benefits.

Please refer to the California Actuarial Advisory Panel (CAAP) documents on "Model Disclosure Elements for Actuarial Valuation Reports" and "Model Actuarial Funding Policies and Practices" for additional information regarding model approaches for valuations, which would generally also apply for pricing benefit changes.

The general policy objectives identified in CAAP's "Model Actuarial Funding Policies and Practices, which are also foundational for benefit design pricing work, ~~-~~include the following:

1. The principal goal of a funding policy is that future contributions and current plan assets should be sufficient to provide for all benefits expected to be paid to current active, inactive and retired members, and their beneficiaries. This means that contributions should include the cost of current service plus a series of amortization payments or credits to fully fund or recognize any unfunded or overfunded past service costs (note that the latter is often described as "surplus").

2. The funding policy should seek a reasonable allocation of the cost of benefits and the required funding to the years of service. This includes the goal that annual contributions should, to the extent reasonably possible, maintain a close relationship to the expected and actual cost of each year of service.

3. The funding policy should seek to manage and control future employer contribution volatility to the extent reasonably possible, consistent with other policy goals.

4. The funding policy should support the general public policy goals of accountability and transparency. While these terms can be difficult to define in general, here the meaning includes that the funding policy should be clear both as to intent and effect, and that it should allow an assessment of whether, how and when the plan sponsor will meet the funding requirements of the plan.

5. The funding policy should take into consideration the asymmetric nature of pension plan governance. These asymmetries include (1) principal/agent issues associated with the potential underrepresentation of future taxpayers in the management of public plans, and (2) the structural asymmetry associated with the need to budget for the ongoing cost of current service.

Policy objectives 1. and 2. above are directly applicable to the pricing of plan design changes, to ensure that changes in benefits are fully funded over a time-frame tied to the accrual of benefits and the working lifetime of the individuals benefiting from the plan changes. To the extent that a

plan design change may affect the volatility of employer contributions (because of a change in the plan's funded status or because future experience deviating from assumptions may generate an unexpected change in benefit costs, policy objective 3. requires additional analysis and disclosure. And, the asymmetric nature of funding discussed in policy objective 5. is critical in plan design changes, especially if surplus or "excess" investment return are funding sources.

The funding policies raised in this discussion were developed for pension benefit increases. However reductions in pension accruals as well as new tiers of reduced benefits and are also discussed. To the extent that OPEB benefits are increased or decreased, these policies could also be applied.

## SCOPE AND DEFINITIONS~~Scope and Definitions~~

TThe cost of pension or OPEB benefit changes ultimately depends on the increased or decreased amount of benefits paid to members over time. However, the plan's funding policies determine the immediate impact on contributions as well as how any contribution changes will be allocated over future years. The three basic sources of funding are contributions (employer and members), surplus and "excess" investment return. The actuarial section focuses on these sources of contributions while the design section also discusses how cost changes are shared between the employer and the members, as well as how those benefit changes may relate to salary or other negotiated benefits.

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There are situations, some explicitly identified below, which may require additional analysis to establish full accountability and transparency regarding the financial impact of benefit plan changes. As always, it is up to the actuary to apply professional judgement to the particulars of the situation and recommend the most appropriate policies and calculations for that situation, including considerations of materiality.

Following are definitions of some terms used in this discussion:

Prospective benefit changes increase/decrease benefits only for service after some specified date. Also known as "future service" or "future service only" benefits changes.

Retroactive benefit improvements increase benefits only for service prior to some specified date. Also known as "past service" benefit increases. While most retroactive benefit increases include all past service, a retroactive benefit increase could apply only to a portion of a member's past service. Note that retroactive benefit reductions are generally not permitted for pension benefits and are therefore omitted in this discussion.

Retroactive and prospective benefit improvements increase benefits for both past service and future service, such as a change in benefit formula for all years of service.

Normal Cost is the portion of the total present value of benefits that is allocated to the current year of service for active members.

Actuarial Accrued Liability (AAL) is the value today of the past normal costs for active members, plus the full present value of benefits for retired and inactive members. It represents the total liability to date for all accrued costs for all members of the system.

Actuarial Value of Assets (AVA) is the value of assets used when determining the employer contribution requirements. It is based on the market value of assets but in a way that reduces or "smooth~~e~~s" short-term market volatility.

Unfunded Actuarial Accrued Liability (UAAL) is the excess, if any, of the plan's actuarial accrued liability (AAL) over the plan's actuarial value of assets (AVA). A plan with a UAAL must receive contributions in excess of the normal cost to achieve full funded status.

Surplus is the excess of the plan's actuarial value of assets (AVA) compared to the plan's actuarial accrued liability (AAL). A plan with a surplus may reduce current contributions below the level of the normal cost.

Amortization is the process of paying off any UAAL or taking credit for any surplus over a period of years (the "amortization period").

The employer contribution rate will generally be the sum of the normal cost plus any UAAL amortization payment (or less any surplus amortization credit), and less any member contributions.

## ACTUARIAL PRICING OF BENEFIT PLAN CHANGES

The remainder of this discussion will identify and discuss a series of considerations that arise when pricing benefit changes, followed by suggested approaches for addressing each consideration in a manner consistent with the concepts and principles identified in the INTRODUCTION AND OVERVIEW. Note that a document used to consider benefit changes should always disclose the impact of the benefit changes on funding. In addition, it may be appropriate to disclose other impacts of the benefit changes, such as the accounting implications.

### Consideration: Actuarial Assumptions ~~Considerations~~

CAAP defers to various Actuarial Standards of Practice regarding the appropriate development and selection of actuarial assumptions. We believe the selection and disclosure of these actuarial assumptions are critical to comply with the funding policy objectives identified above and therefore suggest~~identify~~ specific areas where close attention to actuarial assumptions and additional analysis may be needed. Specifically, the results of stress tests, scenario analyses and stochastic modeling may need to be completed in order to properly disclose the potential change in volatility due to benefit changes, or the dependence of the estimated cost of the benefit change on the actuarial assumptions adopted.

**Suggested Approach: Changes in Behavior -** Assumptions for benefit changes should be set consistent with anticipated experience. For example formula changes that encourage (or discourage) earlier (or later) retirements should be priced using corresponding changes in anticipated retirement rates**. I**f the behavior change is

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especially difficult to predict or has a significant impact on the cost, various possible scenarios should be run and disclosed before plan changes are approved.

**Suggested Approach:** **Benefit Based on Assumption-** If the cost of the benefit varies significantly with an assumption, the sensitivity of the cost impact to the assumption adopted should be disclosed with varying results indicated. For example, a change in actuarial assumption regarding future inflation may be required to fully capture the appropriate cost impact of a change in a COLA formula. And, sensitivity analysis or stochastic modeling showing the impact of various levels of future inflation may be necessary to fully disclose the potential impact of a COLA change on the level and volatility of future employer contributions.

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**Suggested Approach: Gainsharing – The cost of b**~~B~~enefit improvements based on "excess investment return" (~~gain-sharing) are specifically addressed below.~~ should be explicitly recognized. For example, the net investment return (calculated by stochastic modeling to recognize the decrease in gross investment return due to improved benefits) could be used to calculate these liabilities or an explicit assumption adopted regarding the probability of the increase in benefits contingent upon "excess investment return."

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~~**Considerations and Suggested Approaches**~~

~~The remainder of this discussion will identify and discuss a series of considerations that arise when pricing benefit changes, followed by suggested approaches for addressing each consideration in a manner consistent with the concepts and principles identified in the Introduction and Overview. Note that a document used to consider benefit changes should always disclose the impact of the benefit changes on funding. In addition, it may be appropriate to disclose other impacts of the benefit changes, such as the accounting implications.~~

**Consideration: Changes in Actuarial Assumptions or Funding Policies Coinciding with Benefit Changes**

As discussed above, there are times when changes in benefit levels or eligibility require the adoption of revised assumptions to appropriate reflect the expected cost of these changes. However, it a number of unrelated changes are made concurrently, it is possible for the transparency of the financial impact of benefit changes alone to be compromised.

**Suggested Approach**

Other than assumptions as discussed above, other changes in assumption, funding methods, asset smoothing, amortization periods or other policies should not be tied directly to the benefit changes. The change in AAL, change in normal cost, amortization of change in AAL and change in contributions should be calculated and disclosed separately from other changes that do not directly relate to the benefit change.

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**Consideration: Funding Periods for Retroactive (Past Service) Benefit Increases**

Even though GASB rules allow increases in UAAL to be amortized over as long as 30 years, that period will generally be longer than the average working career of the members receiving the past service benefit increase. This means that some of the cost of the benefit increase will be borne by taxpayers who did not receive any services from the affected members. Requiring

shorter amortization periods for retroactive benefit increases means that the short term costs will be higher but that there will be little likelihood of an intergenerational cost shift. Please refer to the "Model Actuarial Funding Policies and Practices" document for more discussion and detail on acceptable amortization periods.

**Suggested Approach**

The total cost (increase in accrued liability) of retroactive benefit increases for active members should be amortized over a period consistent with the "Model Actuarial Funding Policies and Practices", namely based on the demographic period (generally the average future working lifetime for active member benefit changes and the average future lifetime for retiree benefit changes) up to 15 years. Other acceptable time periods for amortization are outlined in that document.

**Consideration: Prospective or Retroactive Benefit Reductions**

While benefit reductions have been unusual for California public pension benefits, they have occurred for OPEB benefits. Generally, if prospective benefit reductions occur which are tied to future benefit accruals, such as a reduction in benefit percentage for pensions, the cost of the benefit changes would be reflected in the future normal cost, with no adjustment to the AAL. However, if a change, such as delayed eligibility for benefits, reduces the value of retroactive and prospective benefits, the effect would be reflected in both the Normal Cost and the AAL.

**Consideration: New Benefit Tier for Future Hires**

If a new tier is implemented for active employees hired after a specific date, and that benefit does not affect active members hired prior to that date, the Normal Cost and AAL for the non-affected active members would not change due to the implementation of the new benefit tier. This is discussed further in the "Model of Actuarial Funding Policies and Practices"

~~**Consideration: Using a Surplus to Fund Benefit Increases**~~

~~The "Model Actuarial Funding Policies and Practices" recommends as a model practice that surplus be amortized over a 30-year period. This longer amortization period creates a smaller annual surplus credit to offset required contributions, thereby minimizing inappropriate incentive to improve benefits in a surplus situation.~~

~~**Retroactive benefit increases** usually increase the UAAL and the associated amortization cost. However, if a plan has a surplus, any retroactive benefit increases may instead reduce the surplus and the associated amortization credit. In effect the surplus would be used to fund the increase in the actuarial accrued liability (AAL) caused by the retroactive benefit increase.~~

**Prospective benefit increases** usually[1] generate t an increase in the long-term normal cost, regardless of the plan's funded status. For vested benefits, this increase in normal cost is expected to be permanent.

**Suggested Approach**

Generally, increases in actuarial accrued liability due to retroactive benefit increases and increases in normal cost due to prospective benefit increases should each be funded by an increase in future contributions. Changes in funding policies, such as funding method, actuarial assumptions, amortization period or valuation of assets, should not be adopted to distort the impact of the benefit change on plan costs. At a minimum, disclosure should clearly include the change in AAL, the change in normal cost, and the change in annual cost due to the benefit change, regardless of the funded status of the plan. This change in annual cost is the change in normal cost plus the amortization of the change in the AAL, ignoring the funded status of the plan, Also, if the level of surplus distorts the impact of the annual cost of the benefit change initially, the short-, intermediate- and long-term impact of the benefit change on the annual cost should be disclosed. And, disclosure of changes in volatility of contributions due to the benefit improvements should be indicated.

**Consideration: Using Excess Investment Return to Fund Retroactive Benefit Increases (Gainsharing)**

Great care should be taken if an increase in retroactive benefits is tied in some way to the return on plan assets in excess of the actuarially assumed investment return. This may occur for supplemental COLAs or 13th checks for retired members, based on the excess investment return on either total assets or assets limited to the retiree liability. If a portion of the excess investment return is used to fund benefit increases in some years, these excess return s are not available to offset investment losses that may occur in other years, thereby lowering the long-term expected net investment return. Unless reductions in benefits occur when investment return is less than expected, these gainsharing benefits are asymmetric and generate an increased cost, which should be reflected explicitly in the valuation.

**Suggested Approach**

In these cases, it would be appropriate to examine the impact of this gainsharing benefit provision, possibly with stochastic modeling. The net expected investment return could be developed, based on combined cashflows of gross market expected returns minus the expected future increases in AAL due to these benefit increases. Then the reduced expected net return could be used to value affected liabilities. Alternatively, the difference between the net and gross expected investment returns could be multiplied by the assets and added to the normal cost to reflect the term cost of gainsharing. Lastly, the probability of providing these excess benefits could be developed, with an explicit assumption adopted to anticipate these future contingent benefits.

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[1] For example this happens under the Entry Age Actuarial Cost method if entry age, for the amount of the benefit improvement, is determined as the age benefits are improved.

**Consideration: Required Financial Impact Disclosures Prior to Adoption**

Currently there is no standard format, content, or process for determining and presenting the cost of a pension benefit improvement. CalPERS has a report format that it uses for agencies requesting a benefit improvement cost study. Similarly, most independent retirement systems will have an actuarial study done at the request of an employer or bargaining parties. However, there is no statewide standard for content, level of detail, disclaimers, or risk analysis. In addition, an actuarial study may be provided to the bargaining parties, but those parties are then free to negotiate benefits with or without direct advice from the actuary. The level of financial detail required and the extent to which it is made available to the public also varies considerably.

As discussed, there are many components to funding benefit improvements, whether retroactive and/or prospective, including:

- Normal cost change and change in UAAL amortization
- Change in member contributions and employer contributions
- Use of surplus or gain-sharing

**Suggested Approach**

Any benefits change proposals should be accompanied by a detailed cost analysis. It may be sufficient to refer to other reports, such as the annual actuarial valuation report or periodic experience study, to define the benefits, actuarial assumptions and methods and other components used for the pricing analysis.

1. The change in the present value of future benefits.
2. The change in normal cost
3. The change in actuarial accrued liability (AAL)
4. The amortization period for any change in UAAL
5. The change in normal cost plus amortization of the change in AAL, regardless of the funded status of the plan and separate from any assumption or method changes not directly required by the change in benefits.
6. The projection of required contributions, funded status or other financial calculations that may not be captured sufficiently by in a single-date pricing.
7. The source(s) of funding for any change in normal cost (as determined by the employer and/or employees)
8. The source(s) of funding for any change in AAL (as determined by the employer and/or employees)
9. The net change in employer cost and the expected duration of such increase, including the short-, intermediate- and long-term impact, if different
10. The net change in employee contributions and the expected duration of such change
11. The impact on surplus, if any.
12. Enhanced risk disclosures such as sensitivity analysis, deterministic stress test or stochastic analysis s where a single deterministic pricing is not sufficient to document with transparency the financial impact of the change. (See CAAP's Model Disclosure Elements for Actuarial Valuation Reports for more detail.)
13. The expected volatility of contribution levels before and after the plan change

14. If applicable, the change in assumptions due to the benefit change and the need for further study, once experience develops
15. If applicable, the impact of the benefit change on walk-away provisions
16. If routinely disclosed or if otherwise under discussion, the impact of the benefit change on hypothetical plan termination liabilities or other plan calculations.
17. Other financial implications of the benefit change, including the impact on accounting disclosures.

Such disclosure should be noticed well in advance of any final contract settlement and made available to all interested parties.

**POLICY ISSUES WHEN DESIGNING PLAN CHANGES (Place-holder, not edited since document split into two major sections.)**

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In the particular context of pension benefit increases, these concepts lead to two basic **principles** for guiding the funding policies contained in this discussion having to do with sufficiency of funding, the equity of funding among generations of fund members, and overall equity issues in the general context of government policy:

1. The funding source should be identified and disclosed in the pricing document. Also, the source of funding should be considered, as appropriate, in pricing the plan design changes. The permanence and size of the funding source should generally balance or match the permanence and cost of the benefit increase.

2. The members who incur the cost of the benefit increase should generally balance or match the members who receive the advantage of the benefit increase. (This likely results in shorter amortization periods for prior service.) (To be modified after further discussion.)

This discussion provides suggested approaches for funding both prospective and retroactive benefit increases and prospective benefit reductions using a variety of funding sources. This document considers the following sources of funding for benefit changes:

- Using surplus to fund benefit increases
- Linking benefit changes to changes in funding policy
- Funding prospective and retroactive benefit changes with employer contributions
- Funding prospective and retroactive benefit changes with member contributions
- Funding retroactive benefit changes with "excess" investment return
- Negotiating pension benefit changes and offsetting salary adjustments in collective bargaining

## Background

**Historical Practice -** California's public sector pension benefits are generally set by some combination of statutory guidelines and collective bargaining and otheragreements between the employer and employees. Historically, benefits have most often been improved; with the cost of any changes in the basic benefit formula determined and allocated as follows:

- A prospective (future service) benefit change usually causes a modification in future normal cost[2]. Any corresponding adjustment in member contributions (either through bargaining or as required by statute) funds a portion of this increased or decreased normal cost.
- A retroactive (past service) benefit increase usually causes an increase in the UAAL, with an associated increase in the UAAL amortization cost. This cost has been typically paid entirely by the employer. The immediate cost impact depends on the amortization period, with longer amortization periods producing lower immediate cost but paid over a longer period of time.
- Amortization periods for increases in UAAL due to benefit increases generally have ranged from 15 to 30 years. Periods from 15 to 20 years represents the approximate working lifetime of the active members, while the 30-year period is the longest period allowed by applicable GASB standards.
- Note that a benefit increase for past and future service is treated as a combination of a prospective and retroactive increase, with increases in both normal cost and UAAL amortization. Any member contribution increases generally are based on and applied to only the increase in the normal cost.
- New tiers of benefits for future hires may provide different benefits. Because these tiers are usually designed to reduce employer costs, the normal cost and employer contributions are lower than for current members. Employee contributions for future hires may also be lower than for current employees.

**Recent Changes -** During the rise of the investment markets in the last twenty years prior to the turn of the 21st century, there was considerable benefit improvement activity among California's pension systems. This has sometimes included various changes in the historical approaches to funding benefit increases as set out above, including the use of surplus, funding policy changes, and the application of member contributions.

In the late 1990s, high levels of investment returns put many of California's public retirement systems into a surplus position. The amortization "credits" from these surpluses made the employer contribution levels fall below the normal cost. Furthermore, under the funding policies then in effect, these surpluses were being amortized over relatively short periods, with some systems using periods as short as five years. Under these policies, it did not take a very large surplus to produce an amortization credit that largely or entirely offset the normal cost, producing a "contribution holiday" for the employer.

[2] For example this happens under the Entry Age Actuarial Cost method if entry age, for the amount of the benefit improvement, is determined as the age benefits are improved.

These surpluses also had a significant impact on the immediate cost of benefit increases. This impact worked somewhat differently for the retroactive and prospective portions of a benefit increase, although the two were interrelated.

The market downturn in the early 2000s caused the assets of most plans to fall below the level of plan liabilities. Although this eliminated the plans' surpluses, any increases in actuarial accrued liability (AAL) due to previous benefit increases remained part of the plan's UAAL and associated amortization cost

For example, for public agencies participating in CalPERS the following hypothetical scenario was not uncommon: While the normal cost of Plan A equals 10% of pay, because of a surplus, there were no required employer contributions and none expected to be required for the next 11 years. In this case, a benefit improvement cost study would show that, after the negotiated benefit increase took place, the new normal cost of Plan A would be 15% of pay. There were still no immediate employer contributions required, but with the benefit increases, employer contributions were projected to resume (at the higher normal cost level) in 6 years, rather than the original 11 years. CalPERS' communication discussed this. However, most employers did not understand what was happening, instead focusing on short term cash flow, which did not change, making it appear that the benefit improvement was free.
, However, for many plans during the late 1990s, surplus amortization credits were large enough to offset some or all of the increase in the normal cost as long as the surplus lasted (i.e., during the surplus amortization period).

**Consideration: Linking Benefit Changes to Changes in Funding Policy**

On occasion, some retirement boards have conditioned funding policy changes to plan design actions by the Governor, the Legislature, or an employer agency. The reverse may also be true—an employer may condition a plan design change on a retirement board taking action on a certain element of its funding policy. For example:

- In 19xx, a California governor offered to sign a bill giving 1 year final compensation to state employees in exchange for the CalPERS Board's agreement to allow the State to stretch out its contribution to PERS in a year with a budget shortfall.

- In 1999, CalPERS' actuarial value of assets (AVA) was at around 90% of the market value. The CalPERS Board adopted a policy where the AVA would be increased to 95% of market value only for those agencies which adopted improved benefits. This change in funding policy had the result of reducing the immediate cost of a new benefit improvement.

- In 2001, with the actuarial value of assets (AVA) close to 95% of the market value, the CalPERS Board adopted a policy of allowing employers who adopted new benefits the option of having their AVA increased to as high as 110% of market value. This action was taken in spite of the advice of both legal and actuarial staff that it was not a good idea.

- According to some reports, the retirement board for the City of San Diego changed city contribution requirements in exchange for benefit increases.

**Suggested Approach**

Funding policies, including amortization periods and asset smoothing methods, should be determined separately from and independent of any proposed benefit improvements.

**Consideration: Funding Benefit Increases with Member Contributions**
Member contributions, both for existing benefits and for benefit improvements, are usually limited to some portion of the plan's normal cost, with the UAAL amortization paid entirely by the employer. In some, members have agreed to pay some or all of the cost of a retroactive benefit increase, by having increased member contributions pay part of the UAAL amortization cost. Actuarially, this introduces a mismatch between costs and benefits that does not occur when members share only the prospective normal cost of the plan. The problem is that active members close to retirement receive the full benefit increase but pay little, leaving either younger employees or taxpayers to fund the benefit.

***For prospective benefit changes***, the normal cost is determined based on the future service of each member and is funded over those future years of service. This means that each member will be paying a portion of the normal cost for the same number of years to which the modified benefits will apply. This provides a match between the years of a new benefit being accrued with the years of adjusted contributions being paid by the member. In particular, future hires will receive the modified benefits and pay the adjusted contributions for their entire careers.

**Suggested Approach**

Increasing or decreasing active member contributions are generally an appropriate mechanism for funding prospective increases or decreases in benefit.

***For retroactive benefit increases*** funded from member contributions, there is no such alignment between the benefits received and the contributions paid. This leads to an inequity among different groups of members. Long service members who retire shortly after the retroactive benefit increase is implemented will receive a substantially increased benefit in exchange for minimal contributions. At the same time, those early in their careers receive relatively little benefit, if any, compared to the additional member contributions required over much of the duration of their career (for the length of the amortization period).

**Suggested Approach**

Active member contributions should generally not be used to fund the amortization of the UAAL. In particular, member contributions should not be used to fund retroactive benefit increases, except to the extent discussed in the section on collective bargaining below. For a plan not using surplus to fund benefit increases, any increase in actuarial accrued liability due to retroactive benefit increases should be funded by an increase in future employer contributions.

**Consideration: Pension Benefit Changes and Salary Adjustments in Collective Bargaining**

Pension benefit changes are often negotiated as part of an overall pay and benefits package. While other elements of the total compensation package may be part of any particular negotiation, for this purpose we will use a simplified situation where pension benefits and salary are the only elements of the bargained package, and salary concessions are being bargained in exchange for pension benefit increases.

***For prospective benefit increases***, the pension benefits changes and the modification in salaries affect the same members over the same years, so the issue of inequity among different groups of members does not arise. However, there is a possible imbalance due to the relative permanence of pension benefits compared to salary levels.

Consider an example where the current normal cost is 10% of pay and a prospective benefit improvement would increase the normal cost to 15% of pay. Further suppose the employer has offered a salary increase in lieu of the pension increase of 15% over three years (5% raise per year). The agreement reached is to forego the first 5% salary increase in exchange for the new pension benefit.

While this is in balance at the outset and will remain so over the three year contract, it may not remain so indefinitely. Many years after the current contract, the pension benefit and the additional 5% normal cost will still be in place, but there may not be any mechanism to ensure that salaries continue to be 5% less that they otherwise would have been.

A simple solution is to have the change in normal cost funded from a modification in member contributions. In this example, the members would receive all three 5% salary increases, and member contributions would increase by 5% of pay. This also has an advantage for the members since the additional 5% of pay will result in increased pension benefits through the final compensation calculation.

**Suggested Approach**

When prospective benefit changes are bargained in exchange for pay concessions, so that the intent is for the members to absorb the increased or decreased cost in lieu of pay increases or decreases, the change in future normal costs should be funded from modified member contributions instead of foregoing pay adjustments.

***For retroactive pension benefit increases***, bargaining increased employer UAAL amortization costs in exchange for lower salary increases raises the same equity issues discussed above for using member contributions to fund the UAAL amortization. For example, the salaries of new hires may be lower that they would have been if not for the retroactive increase, even though the new hires did not share in the retroactive benefits.

One way to avoid this inequity is to match the value of the retroactive benefit increase with the value of the salary concession over the term of the bargaining agreement. This means that the amortization period for the increase in UAAL would be the duration of the bargaining agreement.

This may require that the retroactive benefit increases apply not to all years of past service, but instead to only a limited number of years. In effect each bargaining agreement would apply the salary concession from the period of that agreement to "upgrade" as many years of past service as the actuarial analysis will permit. This could be repeated in future bargaining agreements until benefits for all past service have been increased to the new target level or formula.

**Suggested Approach**

Bargaining parties should consider funding (amortizing) the cost of retroactive benefit increases only over the length of the bargaining agreement. Bargaining parties should consider adopting past service benefit increases only for as many years of service as can be funded by amortizing the UAAL over the same period as the bargaining agreement.

**Consideration: Using a Surplus to Fund Benefit Increases**

The "Model Actuarial Funding Policies and Practices" recommends as a model practice that surplus be amortized over a 30-year period. This longer amortization period creates a smaller annual surplus credit to offset required contributions, thereby minimizing inappropriate incentive to improve benefits in a surplus situation.

**Retroactive benefit increases** usually increase the UAAL and the associated amortization cost. However, if a plan has a surplus, any retroactive benefit increases may instead reduce the surplus and the associated amortization credit. In effect the surplus would be used to fund the increase in the actuarial accrued liability (AAL) caused by the retroactive benefit increase.

**Prospective benefit increases** usually[3] generate t an increase in the long-term normal cost, regardless of the plan's funded status. For vested benefits, this increase in normal cost is expected to be permanent.

**Suggested Approach**

Generally, increases in actuarial accrued liability due to retroactive benefit increases and increases in normal cost due to prospective benefit increases should each be funded by an increase in future contributions. Changes in funding policies, such as funding method, actuarial assumptions, amortization period or valuation of assets, should not be adopted to distort the impact of the benefit change on plan costs. At a minimum, disclosure should clearly include the change in AAL, the change in normal cost, and the change in annual cost due to the benefit change, regardless of the funded status of the plan. This change in annual cost is the change in normal cost plus the amortization of the change in the AAL, ignoring the funded status of the plan, Also, if the level of surplus distorts the impact of the annual cost of the benefit change initially, the short-, intermediate- and long-term impact of the benefit change on the annual cost should be disclosed. And, disclosure of changes in volatility of contributions due to the benefit improvements should be indicated.

[3] For example this happens under the Entry Age Actuarial Cost method if entry age, for the amount of the benefit improvement, is determined as the age benefits are improved.

**Consideration: Using Excess Investment Return to Fund Retroactive Benefit Increases (Gainsharing)**

Great care should be taken if an increase in retroactive benefits is tied in some way to the return on plan assets in excess of the actuarially assumed investment return. This may occur for supplemental COLAs or 13th checks for retired members, based on the excess investment return on either total assets or assets limited to the retiree liability. If a portion of the excess investment return is used to fund benefit increases in some years, these excess return s are not available to offset investment losses that may occur in other years, thereby lowering the long-term expected net investment return. Unless reductions in benefits occur when investment return is less than expected, these gainsharing benefits are asymmetric and generate an increased cost, which should be reflected explicitly in the valuation.

**Suggested Approach**

In these cases, it would be appropriate to examine the impact of this gainsharing benefit provision, possibly with stochastic modeling. The net expected investment return could be developed, based on combined cashflows of gross market expected returns minus the expected future increases in AAL due to these benefit increases. Then the reduced expected net return could be used to value affected liabilities. Alternatively, the difference between the net and gross expected investment returns could be multiplied by the assets and added to the normal cost to reflect the term cost of gainsharing. Lastly, the probability of providing these excess benefits could be developed, with an explicit assumption adopted to anticipate these future contingent benefits.